
BRAYOPSIS GAMOSEPALA (BRASSICACEAE), A REMARKABLE NEW SPECIES WITH GAMOSEPALOUS CALYX

During the preparation of a monograph on the South American species of *Draba* L., a new Bolivian species of *Brayopsis* Gilg & Muschler was discovered. The species, hereafter *B. gamosepala* Al-Shehbaz, is unique among all of the New World members of the mustard family (Brassicaceae) in having typically united instead of distinct sepals.

True and apparent gamosepaly in the Brassicaceae have been previously reported. Hedge (in Hedge & Rechinger, 1968) described *Sisymbrium gamosepalum* Hedge from Afghanistan, but the species has connivent instead of truly connate sepals. Haussknecht (1897) established the genus *Gamosepalum* Hausskn. as distinct from *Alyssum* L. solely on his assumption that *Gamosepalum* has a gamosepalous calyx. Schulz (1936) retained *Gamosepalum* as a distinct genus, but as Dudley (1964) showed, the calyx in this group consists of distinct sepals that falsely appear to be connate because of interlocking idumentum. The only other gamosepalous species of the Brassicaceae was described by Pampanini (1926) as *Desideria mirabilis* Pamp. The species, which Jafri (1973) justifiably transferred to *Christolea* Camb., is endemic to Karakorum, Pakistan. Evidently, gamosepalous calyces evolved independently in *Brayopsis* and *Christolea*.

Brayopsis gamosepala Al-Shehbaz, sp. nov.

TYPE: Bolivia: La Paz, Bautista Naavedra, "Kalkrippen etwa 4 km S Kreuzung der Strasse nach Escoma, Felsspalten, Geröll, Feinschutt; Exp.: W; Neigung 15-45 Grad," 4,460 m, 10 Jan. 1980, *J. Krach* 7640 (holotype, MO; isotypes, GH, M). Figure 1.

Herba perenna caespitosa scaposa nana; folia basalia rosulata densissime conferta, elliptica vel oblonga, 6-8(-15) mm longa, (1.2-)2-3 mm lata, supra et ad marginem longe villosa; calyx campanulatus, (3-)3.5-4.5(-5) mm longus, sepala connata; petala lineares, 6-7 mm longa, 1.2-1.4(-1.7) mm lata; ovarium pilis appressum dense obtectum; siliquae 7-11 mm longae; styli 1.6-2 mm longi; semina 1 × 0.7 mm.

Cespitose, scapose, small, perennial herbs forming dense cushions. Caudex usually branched, cov-

ered with persistent leaf bases of previous years, the branches terminated in rosettes. Basal leaves petiolate, rosulate, 6-8(-15) mm long, (1.2-)2-3 mm wide; blades elliptic or sometimes oblong to ovate, entire, obtuse to subacute, the upper surface and margin sparsely to densely villous with simple trichomes to 2.5 mm long, the lower surface glabrous. Peduncles 1-flowered, sparsely pubescent, 6-10(-15) mm long in fruit. Calyx campanulate, gamosepalous, (3-)3.5-4.5(-5) mm long, sparsely pubescent with short trichomes; teeth broadly triangular, 1-1.8 mm long. Petals linear, 6-7 mm long, 1.2-1.4(-1.7) mm wide, slightly narrowed to base. Stamens tetradynamous, erect, 4-5.5 mm long; anthers narrowly oblong, 1.4-1.8 mm long. Nectar gland ringlike, low, subtending the bases of all filaments. Ovary sessile, densely pubescent with appressed, simple and furcate trichomes. Fruits linear, densely pubescent, 7-11 mm long, ca. 2 mm wide; septum complete; style slender, glabrous, 1.6-2 mm long; stigma capitate, entire. Seeds ovate, subbiseriate, ca. 1 × 0.7 mm.

Brayopsis gamosepala is most closely related to *B. alpaminae* Gilg & Muschler, a Peruvian species which the former resembles greatly in leaf pubescence, ovary and fruit shape and pubescence, and style length. *Brayopsis gamosepala* is distinguished readily by its connate sepals that form a campanulate calyx and larger, only slightly biseriate seeds. In contrast, *B. alpaminae* has a polysepalous calyx and smaller (0.6-0.8 × 0.4-0.5 mm), typically biseriate seeds. The sepals in the latter species are often connivent, and during fruit maturity they, as in *B. gamosepala*, separate from the receptacle as a unit.

Although the development of a gamosepalous calyx in the Brassicaceae is now known in two species of unrelated genera, the feature alone does not justify the establishment of a new genus. In fact, had it not been for the gamosepalous calyx, *Brayopsis gamosepala* could have been easily mistaken for *B. alpaminae*. *Brayopsis* (six species) is a well-defined, monophyletic genus most closely related to *Eudema* Humb. & Bonpl. The taxonomy and the delimitation of the two genera

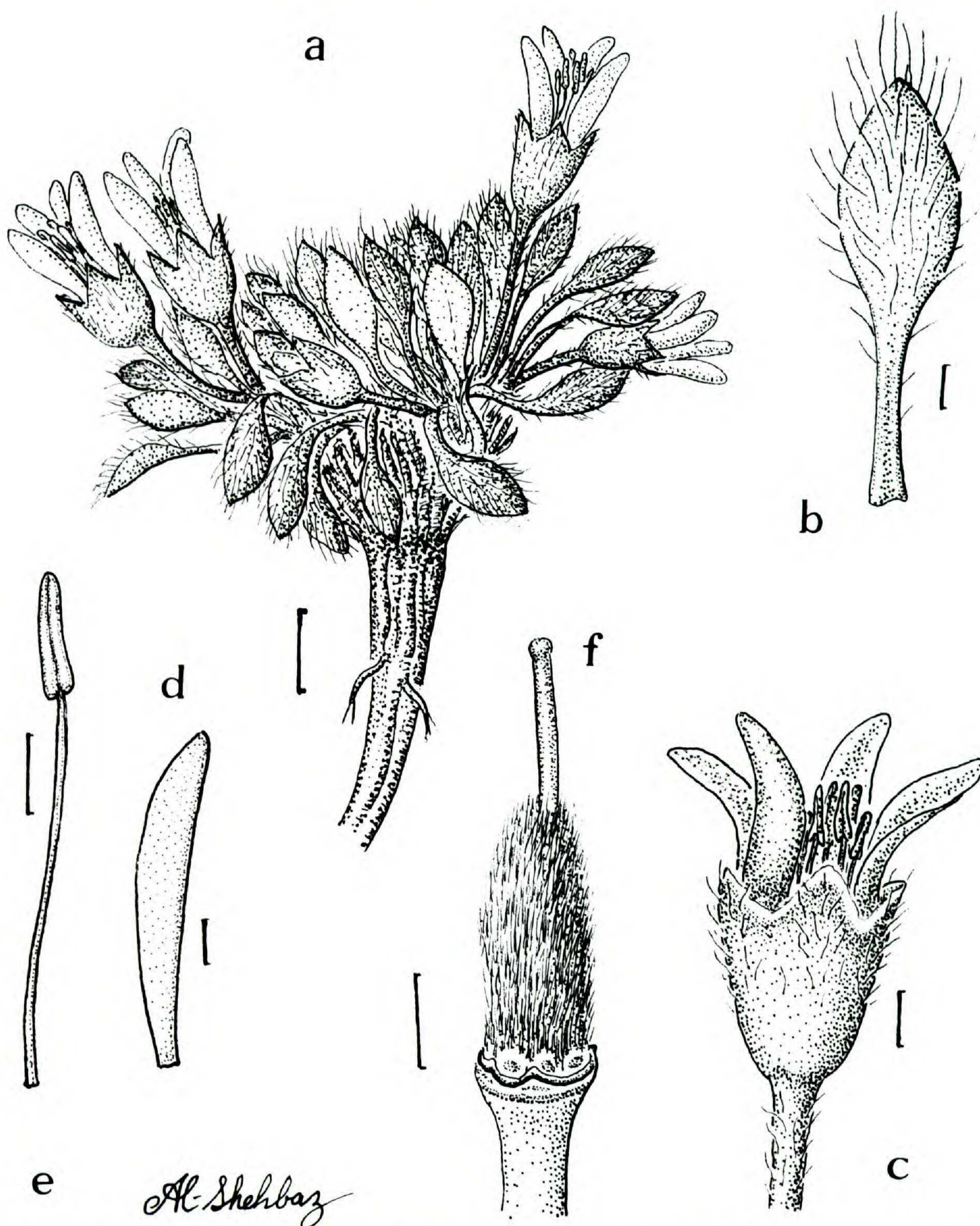


FIGURE 1. *Brayopsis gamosepala*. — a. Plant. — b. Leaf. — c. Flower. — d. Petal. — e. Stamen. — f. Pistil. Scales a = 4 mm; b–f = 1 mm. Drawn from the holotype.

have been recently treated (Al-Shehbaz, 1989, 1990).

I am grateful to Hannes Hertel, the director of Botanische Staatssammlung, München, for permitting the deposition of a few rosettes of the type collection at MO and GH. I am also thankful to George K. Rogers for his critical review of the manuscript.

LITERATURE CITED

- AL-SHEHBAZ, I. A. 1989. The South American genera *Brayopsis* and *Englerocharis* (Brassicaceae). Nord. J. Bot. 8: 619–625.
- . 1990. Generic limits and taxonomy of *Brayopsis* and *Eudema* (Brassicaceae). J. Arnold. Arbor. 71: 93–109.

- DUDLEY, T. R. 1964. Synopsis of the genus *Alyssum*. J. Arnold Arbor. 45: 358–373.
- HAUSSKNECHT, C. 1897. *Gamosepalum* Hskn. gen. nov. Mitt. Thür. Bot. Ver. 11: 73–76.
- HEDGE, I. & K. H. RECHINGER. 1968. Cruciferae. Fl. Iranica 57: 1–372.
- JAFRI, S. M. H. 1973. Brassicaceae. In E. Nasir & S. I. Ali (editors), Fl. West Pakistan 55: 1–308.
- PAMPANINI, R. 1926. *Desideria mirabilis* Pamp., gen. et sp. nov., nuova crucifera anomala de Caracorum (Asia centrale). Bol. Soc. Bot. Ital. 1926: 107–111.
- SCHULZ, O. E. 1936. Cruciferae. In H. Harms (editor), Die Natürlichen Pflanzenfamilien, ed. 2. 17B: 227–658.

— Ihsan A. Al-Shehbaz, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166, U.S.A.